

Transforming custody operations with GenAI

Intelligent reconciliation, settlement
insight and client service optimization

Executive summary

Custodian banks operate in a high-volume, exception-driven environment with strict regulatory scrutiny and low tolerance for errors. GenAI is transforming custody operations by enabling intelligent exception handling, automated interpretation of unstructured data, faster client servicing and predictive operational insights.



1 Industry context

Custodian banks safeguard and service trillions in client assets. Core functions handled by custodians are trade settlement, corporate actions, reconciliations, asset servicing, safekeeping and reporting. Key challenges include rising data complexity, thin margins, operational risk, increasing market volatility and regulatory expectations around transparency and auditability.

2 How GenAI is changing custody operations (with real-world examples)

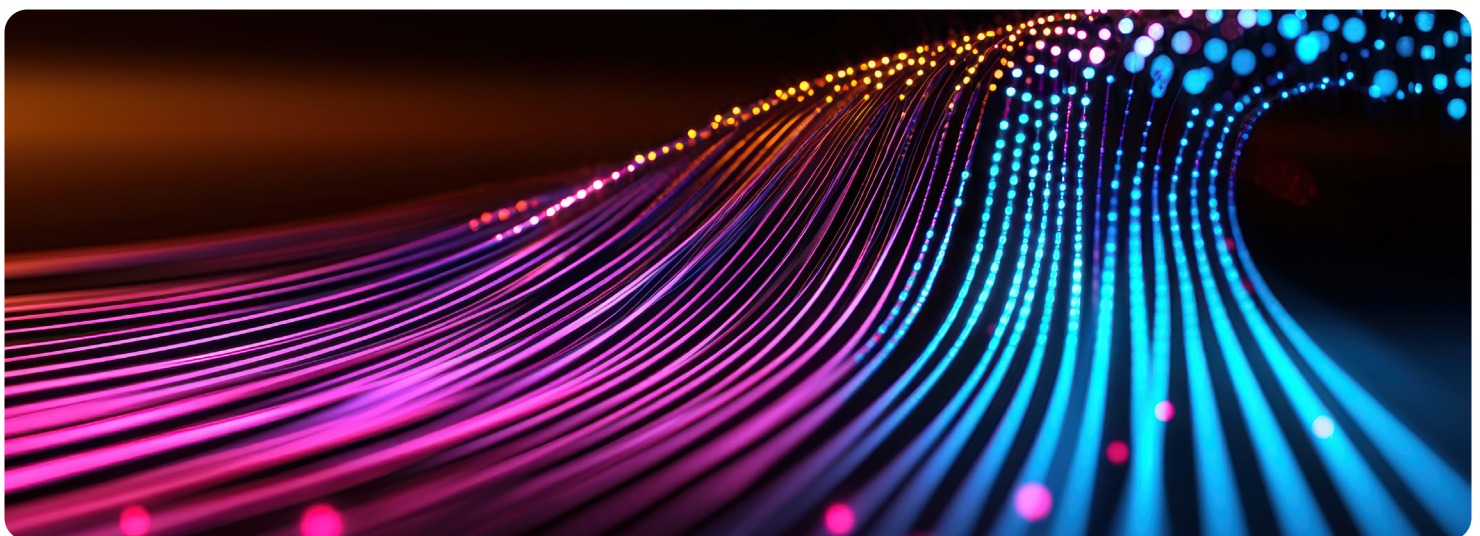
- **BNY Mellon:** Improved cash forecasting and liquidity insights using AI driven forecasting models. By analyzing historical flows, time-of-day patterns and market events, the solution reduces funding mismatches and lower exception volumes arising from inaccurate cash positions.
- **JPMorgan:** Uses ML and NLP to interpret corporate action notices-classifying event types, extracting key fields and auto-generating instruction recommendations. This reduces manual processing, accelerates response timelines and decreases downstream settlement failures.
- **Northern Trust:** Employs AI-based document intelligence for asset servicing to process fund notices, client instructions and reconciliations. This eliminates much of the manual document review, improves SLA performance and reduces data-entry risk.
- **State Street's:** AI-enhanced reconciliation platform identifies break patterns, predicts root causes and categorizes exceptions by severity, this accelerates exception resolution and improves risk-based prioritization.
- **Citi:** Integrates AI models that analyze settlement trends, instrument-level patterns and client behaviors to predict settlement failures and operational bottlenecks allowing for proactive communications with clients.



3 Current pain points in custody operations and GenAI solutions

Custody pain point	GenAI Solution	HCLTech's AI Accelerator
Data scattered across multiple sources and formats, making it hard to process and validate efficiently.	Intelligent document processing using NLP and GenAI	Document Intelligence Accelerator (IDP/iDoRAN or Intelligence Assist*) – extracts and validates fields from PDFs, SWIFT messages and corporate action notices
Low STP in key workflows	GenAI copilots for automated interpretation and recommendation	GenAI copilots for automated interpretation and recommendation
Manual exception processing	Predictive exception management and AI-driven prioritization	Exception Resolution Copilot – prioritizes breaks, predicts root causes and generates closure notes
High email dependency	Conversational AI and GenAI-based workflow orchestration	Email-to-Workflow Automation Bot (HCLTech IntelliService*) – converts trade amendments and confirmations into structured tasks
Limited predictive capability	Predictive fail management using ML + GenAI	Settlement Fail Prediction Engine – analyzes instrument-level patterns and client behaviors to forecast fails
Increasing cost pressures	End-to-end automation with GenAI accelerators	Reconciliation-as-a-Service (HCLTech's Post Trade Solutions*) – ML-assisted matching and automated break categorization

*HCLTech AI Force's Accelerator



Transforming custody operations with GenAI

4 Challenges in implementing GenAI



Hallucinations

GenAI may generate incorrect or unsupported outputs, requires Retrieval-Augmented Generation (RAG)-based grounding and human validation for accuracy.



Data privacy

Sensitive client and transaction data must be protected through strict access controls, encryption and compliant AI deployment models.



Explainability

Regulated custody processes require transparent AI reasoning, making explainable AI techniques essential for audit and regulatory acceptance.



Model drift

AI performance can degrade over time as market behavior changes, necessitating continuous monitoring and periodic model retraining.



5 How HCLTech helps GenAI adoption

Pre-built GenAI accelerators (including in-house capabilities)

HCLTech offers ready-to-deploy GenAI modules for reconciliations, settlements, corporate actions and client service, speeding up time to value.

Seamless integration with custody platforms -

HCLTech's engineering expertise enables smooth integration of GenAI into leading custody systems without core-platform changes.

RAG-based copilots for accurate outputs -

Ensures every AI recommendation in custody workflows is grounded in authoritative sources like SWIFT messages, corporate action notices and reconciliation data—delivering accurate, audit-ready outputs for compliance.

Proven GenAI use cases driving custodian operations by HCLTech

Client / Region	Use case	GenAI solution	Impact / Outcome
Leading European custodian-like bank	Trade surveillance optimization	AI-Foundry + GenAI for e-communications and trade data monitoring	Automated alert summaries, prioritization engine, faster analyst workflow
Cited by leading custodian banks in industry forums	Trade finance / working capital	GenAI use cases in trade finance, compliance, reconciliation	Addresses trade finance, settlement and compliance acceleration
Commonwealth Bank of Australia	Data platform migration	AI-enabled migration of 61,000+ pipelines to AWS for large-scale decisioning	Enabled ~55M automated decisions/day, foundation for agentic AI
Global custody-adjacent bank	Real-time compliance / AML/KYC	GenAI over EMR to validate interactions via prompts	Reduced handling time by 20%, improved verification accuracy

6 Conclusion

GenAI is redefining custody operations by shifting the model from manual, exception-heavy processing to intelligent, predictive and automated workflows. Custodians that adopt GenAI can materially improve STP rates, reduce operational risk, strengthen regulatory compliance and elevate client experience.

While challenges such as data privacy, explainability and model accuracy remain, these can be mitigated through RAG-based grounding, secure deployment frameworks and continuous model governance.

HCLTech’s domain-led GenAI accelerators enable rapid, compliant adoption—integrating AI into reconciliations, settlements and client servicing without disrupting core platforms. As the industry faces rising data complexity and cost pressures, GenAI provides a practical and scalable pathway to deliver operational resilience and next-generation service excellence.

7 About the author



Jayaraman Mudumbai Ravi

Jayaraman Mudumbai Ravi is a seasoned professional with over 16 years of experience across banking operations, capital markets processes and enterprise financial platforms. His career includes exposure to trade lifecycle workflows, securities operations and supporting key functions across asset classes within global investment banking and capital markets ecosystems.

He brings a strong analytical and domain-driven perspective, integrating business insight with technology understanding to evaluate platforms, enhancing operating models, and articulating high-clarity strategic assessments. He has consistently developed structured, research-backed viewpoints that strengthen stakeholder decision making. His professional journey reflects a commitment to simplifying complex financial and system landscapes, enabling greater operational resilience and strategic focus.”

8 References

- BNY Mellon – AI-Driven Forecasting & Liquidity Insights
<https://www.bnymellon.com/us/en/insights/ai-and-data/cash-forecasting-using-ai.jsp>
- JPMorgan – Corporate Actions Automation & NLP
<https://www.jpmorgan.com/solutions/markets/securities-services/corporate-actions>
- Northern Trust – Digital Transformation & AI in Asset Servicing
<https://www.northerntrust.com/united-states/insights-research/2023/artificial-intelligence-in-asset-servicing>
- State Street – AI & Data Science in Reconciliation
<https://www.statestreet.com/ideas/artificial-intelligence-in-financial-services.html>
- Citi – Predictive Analytics for Settlement & Operations
<https://www.citigroup.com/global/news/perspective/ai-in-operations>
- Explainable AI & Model Risk Management (Federal Reserve / SR 11-7)
<https://www.federalreserve.gov/supervisionreg/srletters/sr1107.htm>
- Hallucination Control & RAG Grounding (Microsoft Azure OpenAI Guidance)
<https://learn.microsoft.com/en-us/azure/ai-services/openai/concepts/retrieval-augmented-generation>
- Model Drift & Continuous Monitoring (Google Cloud ML Ops Guide)
<https://cloud.google.com/architecture/mlops-continuous-delivery-and-automation-pipelines>
- SWIFT – Securities Market Operational Challenges
<https://www.swift.com/insights/securities-market-challenges>
- BIS (Bank for International Settlements) – Operational Resilience in Financial Markets
<https://www.bis.org/publ/bcbs516.htm>
- IOSCO – Principles for Custody, Safekeeping & Asset Servicing
<https://www.iosco.org/library/pubdocs/pdf/IOSCOPD507.pdf>
- McKinsey – AI in Capital Markets & Post-Trade
<https://www.mckinsey.com/industries/financial-services/our-insights/ai-in-capital-markets>
- Deloitte – AI & Automation in Securities Processing
<https://www2.deloitte.com/global/en/pages/financial-services/articles/intelligent-automation-securities-processing.html>
- Accenture – GenAI in Financial Services
<https://www.accenture.com/us-en/insights/banking/generative-ai-banking>
- AI-Powered Trade Surveillance
<https://www.hcltech.com/case-study/ai-powered-trade-surveillance>
- Reimagining Commercial Banking with GenAI
<https://www.hcltech.com/whitepaper/reimagining-commercial-banking-genai>
- CommBank – Data Platform Migration (61,000+ pipelines)
<https://www.hcltech.com/case-study/commbank-data-platform-migration>
- Real-Time Compliance / AML KYC
<https://www.hcltech.com/case-study/real-time-compliance-aml-kyc>

HCLTech | Supercharging Progress™

HCLTech is a global technology company, home to more than 226,600 people across 60 countries, delivering industry-leading capabilities centered around AI, digital, engineering, cloud and software, powered by a broad portfolio of technology services and products. We work with clients across all major verticals, providing industry solutions for Financial Services, Manufacturing, Life Sciences and Healthcare, High Tech, Semiconductor, Telecom and Media, Retail and CPG, Mobility and Public Services. Consolidated revenues as of 12 months ending September 2025 totaled \$14.2 billion. To learn how we can supercharge progress for you, visit hcltech.com.

hcltech.com

